

SEQUENCE LISTING

<110> Maxygen ApS
Maxygen Holdings Ltd.

<120> Single-Chain Polypeptides

<130> 0218us210

<150> US 60/245,727

<151> 2000-11-02

<160> 16

<170> PatentIn version 3.1

<210> 1

<211> 174

<212> PRT

<213> Homo sapiens

<400> 1

Thr Pro Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys
1 5 10 15

Cys Leu Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln
20 25 30

Glu Lys Leu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu Val
35 40 45

Leu Leu Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys
50 55 60

Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
65 70 75 80

Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser
85 90 95

Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp
100 105 110

Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro
115 120 125

Ala Leu Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe
130 135 140

Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser Phe
145 150 155 160

Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro
165 170

<210> 2
<211> 63
<212> DNA
<213> *Saccharomyces cerevisiae*

<400> 2
atgaaaattga aaactgttag atctgctgtt ttgtcttc ttttgcttc tcaagtttg 60

gg 63

<210> 3
<211> 126
<212> DNA
<213> Artificial Sequence

<220>
<223> leader sequence

<400> 3
caaccaattg atgataactga atctcaaact acttctgtta atttgcgttgc.tgatgatact 60

aatctgctt ttgctactca aactaattct ggtgggttgg atgttgttgg tttgatatcg 120

atggcc 126

<210> 4
<211> 522
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding G-CSF copy 1 in the single chain G-CSF dimer

<400> 4
actccattgg gtccagcttc ttctttgccca caatctttt tggtgaaatg tttggAACAA 60

gttggaaaaa ttcaagggtga tgggtgtgtt ttgcaagaaa aattgtgtgc tacttataaaa 120

ttgtgtcatc cagaagaatt ggtttgttgg ggtcattttt tgggtattcc atgggctcca 180

ttgtcttctt gtccatctca agctttgcaa ttggctgggtt gtttgcata attgcattct 240

ggtttgggg tttatcaagg tttgttgcac gctttggaaag gtatttctcc agaattgggt 300

ccaactttgg atactttgca attggatgtt gctgattttg ctactactat ttggcaacaa 360

atggaagaat	tggtatggc	tccagcttg	caaccaactc	aagggtctat	gccagctttt	420									
gcttctgctt	ttcaaagaag	agctggtggt	gtttggttg	cttctcattt	gcaatctttt	480									
ttggaagttt	cttatacgat	tttgagacat	ttggctcaac	ca		522									
<210>	5														
<211>	531														
<212>	DNA														
<213>	Artificial Sequence														
<220>															
<223>	DNA encoding G-CSF copy 2 in the single chain G-CSF dimer														
<400>	5														
accacctctgg	ccccggccag	cagtctgcct	cagagttttt	tactgaaatg	cttagaacag	60									
gtcgtaaaa	tccagggcga	tggcgccgc	ctgcaggaaa	aactgtgcgc	gacctataaa	120									
ctgtgccatc	ctgaagaact	ggtcctgtta	ggccatagct	taggcatccc	gtgggcgcct	180									
ctgagtagct	gcccggatca	ggccctgcag	ctggccggct	gcctgagtca	gttacatagt	240									
ggcttatttt	tatatcaggg	cttactgcag	gcgttagaag	gcattagtcc	gaaactgggc	300									
ccgaccctgg	ataccttaca	gttagatgtc	gcggattttt	ccaccacat	ttggcagcag	360									
atggaagaat	taggcattggc	gcctgcgtta	cagcctaccc	agggcgccat	gcctgcgttt	420									
gcgagtgcgt	ttcagcgtcg	cgccggccgc	gtgttagtgg	ccagccatct	gcagagctt	480									
ctggaagtga	gttacgtgt	gttacgccc	ctggcccagc	cttaatctag	a	531									
<210>	6														
<211>	348														
<212>	PRT														
<213>	Artificial Sequence														
<220>															
<223>	Single chain G-CSF dimer polypeptide														
<400>	6														
Thr	Pro	Leu	Gly	Pro	Ala	Ser	Ser	Leu	Pro	Gln	Ser	Phe	Leu	Leu	Lys
1															
10															
15															
Cys	Leu	Glu	Gln	Val	Arg	Lys	Ile	Gln	Gly	Asp	Gly	Ala	Ala	Leu	Gln
20															
25															
30															
Glu	Lys	Leu	Cys	Ala	Thr	Tyr	Lys	Leu	Cys	His	Pro	Glu	Glu	Leu	Val
35															
40															
45															

Leu Leu Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys
50 55 60

Pro Ser Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser
65 70 75 80

Gly Leu Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser
85 90 95

Pro Glu Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp
100 105 110

Phe Ala Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro
115 120 125

Ala Leu Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe
130 135 140

Gln Arg Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser Phe
145 150 155 160

Leu Glu Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro Thr Pro
165 170 175

Leu Gly Pro Ala Ser Ser Leu Pro Gln Ser Phe Leu Leu Lys Cys Leu
180 185 190

Glu Gln Val Arg Lys Ile Gln Gly Asp Gly Ala Ala Leu Gln Glu Lys
195 200 205

Leu Cys Ala Thr Tyr Lys Leu Cys His Pro Glu Glu Leu Val Leu Leu
210 215 220

Gly His Ser Leu Gly Ile Pro Trp Ala Pro Leu Ser Ser Cys Pro Ser
225 230 235 240

Gln Ala Leu Gln Leu Ala Gly Cys Leu Ser Gln Leu His Ser Gly Leu
245 250 255

Phe Leu Tyr Gln Gly Leu Leu Gln Ala Leu Glu Gly Ile Ser Pro Glu
260 265 270

Leu Gly Pro Thr Leu Asp Thr Leu Gln Leu Asp Val Ala Asp Phe Ala
275 280 285

Thr Thr Ile Trp Gln Gln Met Glu Glu Leu Gly Met Ala Pro Ala Leu
290 295 300

Gln Pro Thr Gln Gly Ala Met Pro Ala Phe Ala Ser Ala Phe Gln Arg
305 310 315 320

Arg Ala Gly Gly Val Leu Val Ala Ser His Leu Gln Ser Phe Leu Glu
325 330 335

Val Ser Tyr Arg Val Leu Arg His Leu Ala Gln Pro
340 345

<210> 7
<211> 90
<212> DNA
<213> Homo sapiens

<400> 7
atggctggac ctgccaccca gagccccatg aagctgatgg ccctgcagct gctgctgtgg 60
cacagtgcac tctggacagt gcaggaagcc 90

<210> 8
<211> 522
<212> DNA
<213> Artificial Sequence

<220>
<223> DNA encoding single-chain G-CSF copy 1 (codon usage optimized for expression in CHO cells)

<400> 8
actccattgg gtccagcttc ttcttgcca caatctttt tggtgaaatg tttggAACAA 60
gttagaaaaa ttcaagggtga tggtgctgct ttgcaagaaa aattgtgtgc tacttataaa 120
tttgtgtcatc cagaagaatt ggTTTGTG ggtcattttt tgggtattcc atgggctcca 180
ttgtttctt gtccatctca agctttgcaa ttggctggtt gtttgcctca attgcattct 240
ggTTTGTG tttatcaagg tttgttgcaa gctttggaaag gtatttctcc agaattgggt 300
ccaactttgg atactttgca attggatgtt gctgattttg ctactactat ttggcaacaa 360
atggaaagaat tgggtatggc tccagcttg caaccaactc aaggtgctat gccagcttt 420
gcttctgctt ttcaaaagaag agctgggtgt gttttgggtt cttctcattt gcaatcttt 480

ttgaaagttt cttatagagt tttgagacat ttggctcaac ca

522

<210> 9
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 9

His His His His His His
1 5

<210> 10
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 10

Met Lys His His His His His His
1 5

<210> 11
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 11

Met Lys His His Ala His His Gln His His
1 5 10

<210> 12
<211> 14
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 12

Met Lys His Gln His Gln His Gln His Gln His Gln
1 5 10

<210> 13
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 13

Met Lys His Gln His Gln His Gln His Gln His Gln Gln
1 5 10 15

<210> 14
<211> 10
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 14

Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
1 5 10

<210> 15
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 15

Asp Tyr Lys Asp Asp Asp Asp Lys
1 5

<210> 16
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> tag

<400> 16

Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
1 5